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ABSTRACT

A review is presented of the results of testing college students' health knowledge from the years 1930 to 1977. Topics covered by the tests are outlined and analyzed. Results indicate that over a period of years college students have become more knowledgeable about facts pertaining to physical and mental health. (JD)

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# THE CHANGING HEALTH KNOWLEDGES OF COLLEGE STUDENTS

by

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A health education program designed especially for college students should be:

> A process with intellectual, psychological and social dimensions relating to activities which increase the abilities of people to make informed decisions affecting their personal, family, and community well being. This process based on scientific principles, facilities learning and behavioral change in both health personnal and consumers, including children and youth.[1]

In determining such a process, a sequence of relevant and planned learning activities should be established. One of the components of the process of curriculum development, should be determining the present health knowledge level of the enrolled students. Knowledge according to Kilander is:

> ...a term used here to cover collectively facts, information, understanding, know-how, and experience in general whether obtained directly, or vicariously, as through a class discussion or through reading in a book. By knowledge is futher meant those items of learning by which the pupil learns what to do in a given situation, and enough about why it is done to make procedures meaningful insofar as he is able to understand it. It includes such knowledge as can be understood and used by the pupils and adults on their respective level of experience and ability.[2]

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1 "Report of the Joint Committee on Health Education Terminology," School Health Review, 4:28, November-December, 1973.

2 H. F. Kilander, "Testing Health Information of Students and Adults," Journal of School Health, 24:28-34, January, 1954.

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Health knowledge can be tested with fair accuracy, and health attitudes and behaviors are of great lifetime importance. Even though it is impossible to formulate in college all necessary positive health habits, knowledge is essential for assisting the individual in the health behavioral decision making process. Following is a review of selected health knowledge studies of college students, 1930--1977, that were considered relevant for pre-testing, motivational, or evaluation of the teaching/learning process.

## Health Knowledge Studies

During 1933, Merkeley[3] reported on a study of college women's knowledge in the field of personal hygiene. A health knowledge test was administered to 1,138 college women attending four colleges in Southern California. The results of the test data indicated that the majority of the students had an adequate knowledge of mental hygiene, personal hygiene, and muscular hygiene, but knew less about their inheritance, sex hygiene, hygiene of nutrition, and hygiene of disease.

In 1935, Forsythe and Rugan[4] administered a health knowledge test to 1,045 freshmen at the University of Michigan prior to their receiving health instruction. The test was composed of true and false, multiple choice, and completion questions. In the analysis of the data, the answers were grouped and tallied by subjects as they related to the topics listed. Results of the survey indicated that the students were most

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[3] Lois Merkeley, "A Study of the Knowledge and Interest in Hygiene of College Women," unpublished M.A. thesis, University of Southern California, 1933, 107pp.

[4] W. Forsythe and M. Rugan, "A Health Knowledge Test," Research Quarterly, 6:105-120, May, 1935.

familiar with mental hygiene; miscellaneous; medical care, quackery, and self treatment; tuberculosis; nutrition and diet and; physical exercise and rest. The students were less knowledgeable about the topics of communicable disease and infection; public health in general; anatomy and physiology; first aid; health statistics and; sex.

Rooks[5] in 1935, reported on the development of a true-false health knowledge test at the State University of Iowa. The test items were developed after reviewing personal hygiene books and test manuals, and health misconceptions obtained from magazines and radio advertisements. The statements were grouped under twenty-one headings, and a preliminary test administered to 169 students.

Kilander in 1937 constructed a 100 question test from all major fields of health education. The sample group administered the test included 844 high school seniors, 504 college freshmen, and 430 adults. The following conclusions were drawn from the study:

1. Individual scores vary a great deal within a class.
2. The mean rises in general for each year within a given school both in high school and college level.
5. The rise in the mean for each year in college is related mainly to the amount of specific instruction received in health education...
10. A college education per say does not necessarily add to the health knowledge of students.[6]

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[5] R. Rooks, "The College Freshman's Knowledge of and Interest in Personal Hygiene," Research Quarterly, 6:15-80, October, 1935.

[6] H. F. Kilander, "Health Knowledge of High School and College Students," Research Quarterly, 8:8-9, October, 1937.

The health knowledges of two groups of college freshmen women enrolled in physical education were compared by Murphy in 1937. One group attended health discussion groups and read assigned readings, while another group of students did not attend any discussion groups nor do outside readings. In addition, a third group of juniors and seniors were compared to the first two groups. All 3,000 students were given the knowledge test at the beginning and the end of the semester. The conclusions drawn from the study indicated that:

> ...the most difficult topic or section was posture. The least percentage gain in knowledge was under the topics entitled bathing, posture, sleep, rest, and underweight and overweight.[7]

A study relating to the health knowledge of women enrolled in Glendale Junior College, Glendale, California, was completed by Cox[8] in 1937. The purposes of the study were to determine in what phases of health knowledge the students were weak or strong, to compare the health knowledges of graduates from the two high schools, and to compare the health knowledge of students have taken courses in hygiene, physiology, nutrition or first aid with students who had not had such courses. The test data indicated that the students were more informed in mental health and personal hygiene, whereas, inheritance, sex and diseases were the least understood areas by the students.

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[7] M. A. Murphy, "Gains in Health Knowledge of Two Groups of Women Students," Research Quarterly, 8:78-88, December, 1937.

[8] Helen Cox, "A Study of the Health Knowledge of Women Students at Glendale Junior College," unpublished M.A. thesis, University of Southern California, 1937, 102pp.

In 1940, Deneholz[9] published a specific health knowledge test to determine how much college women know about syphillis and gonorrehea. The test constructed included 100 true and false questions and the validation was based upon the opinions of experts in the area of venereal disease. The test was ultimately administered to 673 undergraduates at Pennsylvania State University.

Two first aid knowledge tests that could be easily administered were developed by Doscher[10] in 1943. The tests consisted of seventy-six multiple choice questions. Fifteen first aid classes took the tests after completing the American Red Cross Standard Course. From the test results, the research concluded that the tests met the Red Cross Standards for Equivalence.

Kilander[11] in 1944 reported on the public's knowledge of nutrition from 1936 to 1944. The sample population of 5,000 included college students. Conclusions drawn from the analysis of the data indicated that the public is better informed today than in 1937 and that in general, people who are the best informed are also the ones who are eating best, nutritionally speaking.

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[9] S. Denenholz, "Knowledge Test of Syphillis and Gonorrehea," Research Quarterly, 11:110-114, June, 1940.

[10] N. Doscher, "Two First Aid Examinations for College Students and Adult Groups," Research Quarterly, 14:228-238, May, 1943.

[11] H. F. Kilander, "What the Public Knows About Nutrition," Journal of Home Economics, 36:78-79, February, 1944.

During the years 1942--1943, Trice[12] conducted a study to determine the health knowledge of students enrolled in six selected colleges in Louisiana. One hundred copies of the KILANDER HEALTH KNOWLEDGE TEST were mailed to each of the six selected colleges and 100 students from each school were requested to participate in the testing program. A total of 538 responses were returned. From the analysis of the data, Trice concluded that the college students had received more intensive instruction in the areas of safety and first aid than in any other health content area. Seniors were notably more proficient in health information than were the freshmen students. Lastly, students generally enter college with relatively little accurate health knowledge.

Shaw and Troyer in 1947 developed a test to measure health knowledge of high school and college students. After analyzing health syllabi, testbooks, reports and bulletins, the authors constructed two sixty item multiple choice question tests. Topics found within the test included:

> ...food and nutrition; play and recreation; dental health; care of the special senses; temperance; mental health; social health; heating, lighting and ventilation; child care; home care of the sick; community health protection; disease prevention and control; safety, and first aid.[13]

A hygiene proficiency test which was administered to 1,000 entering freshmen at the University of Illinois was devised by Hinrichs in 1953. The test included questions on factual knowledge concerning currently accepted practices and attitudes in the various phases of hygiene. These areas included:

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12 Ethel Trice, "A Study of the Health Knowledge of College Students in Louisiana," unpublished M.A. thesis, Louisiana State University, 1946, 68 pp.

13 J. Shaw and M. Troyer, "The Development of a New Test in Health Education," Journal of School Health, 17:216, October, 1947.

> public health and consumer health; general bodily hygiene; mental health; personal health problems; reproduction and sex; heredity and; nutrition and diet.[14]

From the test results obtained it was concluded that the greater area of question difficulty was encountered in the group of sixteen questions on body structure and function with nutrition being ranked second.

In 1954, Bridges published a health knowledge test. Areas included within the test were:

> ... nutrition; emotional health; exercise; narcotics; body function; social health; community health; personal health; family living; sense organs; occupation; home nursing; current; heredity; school and; consumer.[15]

The six textbooks receiving the highest rating from a jury of experts were used as the basis for the selection of the test items. The resulting test form was administered to 1,077 students. Results of the test administration, indicated that the test had statistical validity in every item in discriminating between the good and poor student.

In an effort to determine what male college freshmen knew about alcohol, Gross and Davis in 1957 administered the Alcohol Quotient Test to 1,797 students. Prior to the test, none of the students had any previous formal instruction on the topic of alcohol in their required health instruction course. According to the results of the data obtained from the Alcohol Quotient Test, it was noted that more emphasis needed to be placed on the following aspects of alcohol education:

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[14] Marie Hinrichs, "Some Notes on a College Proficiency Test in Hygiene," Research Quarterly, 24:16-17, March, 1953.

[15] F. Bridges, "Health Knowledge Test for College Freshman," Journal of School Health, 27:301, October, 1957.

> ...the odor of alcohol and its detection on a person's breathe; diagnosis of drunkeness; the effects of drinking equal amounts of alcohol in a diluted and in an undiluted state; the relationship of alcohol to ether, chloroforms and other anesthetics; and the effects of switching alcoholic drinks upon the condition of the drinker.[16]

Fikes[17] in 1957 conducted studies to evaluate the health information status of prospective and experienced teachers. The ACRON HEALTH KNOWLEDGE AND APPLICATION TEST was administered to 1,003 teachers. The results of the study indicated the need for more emphasis on health knowledge and its application for the prospective teacher.

Under Dearborn's guidance in 1958, the DEARBORN HEALTH KNOWLEDGE TEST was given to 12,000 freshmen and sophomore students in fifteen universities, colleges, and junior colleges in California. The test was designed to measure the general level of personal health knowledge before instruction. Significant results indicated that:

> The mean achievement scores of 44 per cent and 54 per cent clearly demonstrated the need and responsibility to make health instruction available on the college level, and to improve such instructions in high school.[18]

Kilander in 1959 surveyed the health knowledges related to tuberculosis held by high school and college students. He compared the results of this survey with the earlier surveys of 1936-37. In this study he utilized the

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16 E. Gross and A. Davis, "What Male College Freshmen Know About Alcohol," Journal of School Health, 27:301, October, 1957.

17 J. Fikes, "Health Knowledge of Teachers," Journal of School Health, 27:247-248, November, 1957.

18 Terry Dearborn, "Personal Health Knowledge of College Students Before Instruction," Research Quarterly, 20:157, May, 1958.

KILANDER TUBERCULOSIS INFORMATION TEST, the KILANDER HEALTH KNOWLEDGE TEST FOR COLLEGE STUDENTS, and the KILANDER KNOWLEDGE TEST FOR HIGH SCHOOL STUDENTS. Results of the survey indicated:

> ...there was considerable improvement between 1937 and 1958 on students' knowledge about how tuberculosis in childhood is acquired today. Of the college freshmen, 57 per cent indicated correctly that it was from contact with grown-ups who have the disease as compared with only 28 per cent in 1937...That this disease should be considered primarily an infection in attempting to eradicate TB was correctly checked by 63 per cent of the college freshmen in 1958 as compared to 43 per cent in 1937...that rest is the most important procedure in the recovery from TB was indicated correctly by 73 per cent of college freshmen in 1958 as compared with only 43 per cent in 1937.[19]

Kilander, in the same year, surveyed the public's knowledge about certain aspects of human reproduction. The KILANDER HEALTH KNOWLEDGE TEST was administered to over 200 groups of high school students, college students, and various adult groups. Results of the KILANDER HEALTH KNOWLEDGE TEST indicated:

> ...that people are superstitious or misinformed on this subject...that a blood test required in many states before a marriage license is issued, is for the purpose of determining whether either party has syphilis is known by about half of the high school students, by about three out of four of the college students and by about eight out of nine adults.[20]

Another test, the INFORMATION TEST ON HUMAN REPORDUCTION was given to fifteen college and adult groups. Information from the test indicated:

> Most...but not all, individuals tested know that an egg is fertilized when it unites with the sperm...most, but not all, know that the

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[19] H.F. Kilander, "Knowledge About Tuberculosis Held by High School and College Students," Journal of School Health, 29:161-162, April, 1959.

[20] H. F. Kilander, "A Survey of the Public's Knowledge of Certain Aspects of Human Reproduction," Journal of School Health, 29:213, June, 1959.

> organ of the human being in which the eggs are produced is called the ovary, rather than testes, uterus, or umbilicus...Slightly more than half of those tested know that the sex of the child is determined by the sperm rather than by the nucleus of the egg, or the number of chromosomes in a cell.[21]

Richardson in 1960 constructed a 100 partial sentence test to determine indicatives to the subject's latent attitudes, conflicts, ignorance, and indecisions as related to health. Topics selected for inclusion in the test were:

> ...health and health education (orientation); foods and nutrition; physical fitness and exercise; sex and sex education (family life education); and physicians and medical care (consumer health).[22]

This original pool of items was administered to 245 freshmen at Southern Illinois University, and was ultimately reduced from 100 to 51 sentences in its final form.

A summary of general findings and observations related to the health knowledges of the American people was presented by Kilander in 1961. The summary covered the time period of the previous twenty-five years. Materials were gathered from broad health knowledge tests and single knowledge tests in the areas of first aid, tuberculosis, nutrition, personal health, mental health, human reproduction, and alcohol and narcotics. The summary of his findings indicated:

> There has been a slight but steady improvement in the level of information held by students and adults over the years covered by this study... Individuals still hold many misconceptions about nutrition, weight reducing, tuberculosis, prenatal influences, mental health, and first aid procedures.[23]

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[21] Ibid., p. 214.

[22] Charles Richardson, "A Sentence Completion Health Attitude Test for College Students," Journal of School Health, 30:32, January, 1960.

[23] H. F. Kilander, "Health Knowledge," Journal of Health, Physical Education and Recreation, 32:28-29, May-June, 1961.

The Junior College Health Knowledge Study in California was conducted under the direction of Dearborn in 1963. The DEARBORN HEALTH KNOWLEDGE TEST was given at the beginning and the end of a semester's course to 5,267 students enrolled in thirty-four colleges. The findings of the study indicated:

> The pretest mean score for students in all junior colleges was 46.6 per cent. The retest mean score was 58.8 per cent, showing an overall gain of 12.2 points.
> The item #95 dealing with eye examinations, scored lowest on the pretest...on the retest remained second lowest...deep breathing exercises, ranked second from the bottom on the pretest with 7.8 per cent, but hit bottom of the retest with 13.8 per cent...[24]

Thompson in 1964 developed the THOMPSON SMOKING AND TOBACCO KNOWLEDGE TEST. The test approached the problem from the point of view that teaching in any area is far more effective if the knowledge, attitudes, and understandings of the individuals to be taught are known. A twenty five multiple choice test was developed from the concepts of "the physiological effects of tobacco smoking, psychological effects of tobacco smoking, and the socio-economic effects of tobacco smoking."[25] Validity and reliability were obtained after administration of the test to 1,227 students.

In 1967, McCreary-Juhasz analyzed students' evaluations of the extent of their knowledge of human sexuality. A two part questionnaire was constructed to include the topical headings of "structure and function of sexual organs; menstruation; puberty; conception; masturbation; venereal disease; wet dreams; menopause; and contraceptives."[26] Results indicated:

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24 T. Dearborn, "The Junior College Knowledge Study in California," Journal of School Health, 32:91-92, February, 1963

25 C. Thompson, "Thompson Smoking and Tobacco Test," Research Quarterly, 35:60, March 1964.

26 A. McCreary-Juhasz, "How Accurate are Student Evaluation of the Extent of Their Knowledge of Human Sexuality." Journal of School Health 37:410, October, 1967.

> ...60 per cent of the females and only 50 per cent of the males were well-informed about menstruation... ...that less than 20 per cent of both males and females thought that they had inadequate information, over 80 per cent actually had very little information. (venereal diseases)
>
> On the topics of contraceptives and menopause over 80 per cent of all students were well-informed and for both males and females the scores exceeded the ratings.[27]

The health knowledge gained during a semester in a college personal and community health course was evaluated by Shaw[28] in 1969. A health knowledge test of 150 questions was prepared from the test manual of Good Health, by Miller and Burt. This test was administered to 148 students during the first class meeting and again at the completion of the course. An analysis of the data indicated that after instruction each section's knowledge of health improved statistically.

Campbell and Early in 1969 compared the health knowledge of young adults and their parents. They administered the KILANDER HEALTH KNOWLEDGE TEST to forty-nine students in freshmen health sciences at the beginning and at the end of the semester. In addition, the parents were administered the same test during that period. The results of the study indicates:

> The mean score for the parent population and the pre-instruction mean scores for the student population were compared by areas and a significant difference was found between category mean scores for Personal Health, Nutrition, Community Health and Sanitation, Consumer Health, Family Living and First Aid. The post-instruction category mean scores for the students were also compared to the parents category mean scores and

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27 Ibid., pp. 411-412.

28 C. Shaw, "A Before and After Analysis of Increases in Health Knowledges: A Basic Evaluation of an Elementary Health Course," Journal of School Health, 39:64-68, January, 1969.

> a significant difference was found between the category mean scores for Nutrition and Community Health.[29]

Pollock[30] in 1969 reported on the designing of an instrument to gather data about drug knowledge and drug use/abuse. The instrument was composed of two sections, with section one concerning self-reported questions about actual behavioral patterns in the use of alcohol, tobacco, dangerous drugs and narcotics. Section two included 62 multiple choice knowledge items. The instrument was administered to 465 college students at California State College, Long Beach. Results of the analysis of data collected indicated that students possess many misconceptions about drug substances, as indicated by such responses as, lung cancer, rather than coronary heart disease is the chief cause of the premature death rate among smokers, that alcohol is a stimulant, that pills called "goof balls" were stimulants, and that cigarettes made from pipe tobacco are milder and less harmful than regular cigarettes.[31]

In 1970 Maughan[32] reported on a survey of health knowledge of 250 randomly selected students at two universities in Utah. A 40 question instrument concerning the health areas of alcohol and tobacco; community health and communicable disease; consumer health; drugs and narcotics; food fads and medical quackery; mental health; personal health and; sex education was administered to the selected students. Results of the study indicated

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[29] D. Campbell and R. Early, "Comparisons of Health Knowledge of Young Adults and Their Parents," Research Quarterly, 30:680, December, 1959.

[30] M. B. Pollack, "The Drug Abuse Problem: Some Implications for Health Education," American College Health Association Journal, 17:403-411, June, 1969.

[31] Ibid., p. 410.

[32] Richard Maughan, "A Comparison Survey of Health Knowledge Between Sophomores at Utah State University and Sophomores at the University of Utah," unpublished M.S. thesis, Utah State University, 1970, 46pp.

that the level of health knowledge was higher at the institution where a basic health course was required.

The KILANDER HEALTH KNOWLEDGE TEST was administered to 160 randomly selected graduating elementary teachers by Krueger[33] in 1970. Conclusions drawn from the analysis of the data indicated that the level of general health knowledge held by the students was adequate; consumer education, nutrition, and family life and sex education knowledges were considered strengths and; the areas of environmental and community health, and stimulants and depressants were considered the weakest content areas.

Iverson[34] in 1971, reported on a study that determined the level of drug knowledge as held by college students. The valid and reliable IVERSON DRUG KNOWLEDGE TEST, consisting of questions related to the topics of physical, social, legal, and general aspects of the drug topic, was administered to 3,788 students in twenty-three different states. Results of the analysis of the data indicated that college upperclassmen possessed a higher level of drug knowledge than freshmen, that males and females did not differ significantly in their level of drug knowledge, and that college students enrolled in the Southwestern United States had the high level of drug knowledge than students in other geographical areas, as measured by this test.

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[33] E. Krueger, "A Study of the Health Knowledge of Graduating Elementary Teachers at Newark State College," unpublished Ed.D. dissertation, Columbia University, 1970, 159 pp.

[34] Donald Iverson, "A Drug Knowledge Survey of College Students Selected From Colleges and Universities Throughout the United States for the Purpose of Establishing Norms," unpublished Ph.D. dissertation, University of Oregon, 1971, 74 pp.

In 1971 Taylor[35] studied the college freshman's knowledge about marijuana. A thirty item test was administered to 372 students attending the University of Victoria. Contents of the test items were chosen after a review of seventy popular and technical articles. Results of the analysis of the data indicated that the students lacked information about the historical and non-technical facts of marijuana and the males obtained a higher median score than the females.

Bender[36] in 1971 reported on a study designed to determine the human reproduction knowledge of prospective elementary teachers by administering the MCHUGH'S SEX KNOWLEDGE INVENTORY to 163 senior elementary education students in Tennessee. Results of the analysis of the data indicated that the students displayed a lack of knowledge related to the location and function of specific reproductive organs, that the prospective teachers were not knowledgeable of basic sex terminology, that factors such as father's occupation, type of community in which the childhood was spent, and first source of sex information had no effect on the scores achieved by the respondants and, that factors as marital status and number of siblings, did influence the reproductive level of knowledge of the respondents.

In 1973, Warren and St. Pierre[37] reported on a study of sources and accuracy of college students' sex knowledge. A twenty-five item knowledge test on the physiology of the male and the females reproductive system; contraception and; pregnancy and childbirth was administered to 266 college

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[35] H. Taylor, "A Test for Measuring Students' Knowledge of Marijuana," Measurement and Evaluation in Guidance, 4:116, July, 1971.

[36] S. Bencer, "The Human Reproduction Knowledge of Prospective Elementary Teachers," Journal of School Health, 41:273-274, May, 1971.

[37] C. Warren and R. St. Pierre, "Sources and Accuracy of College Students' Sex Knowledge," Journal of School Health, 43:588-590, November, 1973.

students. Results of the analysis of the data indicated misconceptions in the areas of determination of a child's sex, functions of the contraceptive pill, and the physiological basis for the rhythm method.

Gunter[38] in 1972 reported upon the development of a valid and reliable health knowledge test with two equivalent forms. Topics included within the test were: gender, courtship, and marriage; world and community health and health agencies; mental health; health hazards; personal health; drugs, alcohol, and tobacco; nutrition; and understanding diseases.

Amos[39] reported on the health knowledge of 414 students enrolled at Guilford Institute in 1973. The KILANDER HEALTH KNOWLEDGE TEST FOR COLLEGE STUDENTS was admininstered to the selected students. The results of the analysis of the data indicated that the students were less knowledgeable about the health content areas of community health; personal health and; stimulants an depressants; and more knowledge was exhibited in the health content areas of first aid and communicable diseases. In addition, Amos found that school health instruction is effective in promoting health knowledge.

The FAST-TYSON HEALTH KNOWLEDGE TEST as indicated by Fast[40] in 1974 consists of 100 multiple choice items designed to measure judgements related to health content. Health content areas included within the test are: personal health; exercise, relaxation and sleep; nutrition and diet; consumer health; contemporary health problems; tobacco, alcohol, drugs, and narcotics;

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[38] Ken Gunter, "Formulating and Validating a College Health Knowledge Test," unpublished Ed.D. dissertation, University of Alabama, 1972, 365pp.

[39] L. Amos, "Health Knowledge and Interests of Students at Guilford Technical Institute," unpublished M.Ed. thesis, University of North Carolina, Greensboro, 1973, 110pp.

[40] C. Fast, Test Manual, Northeast Missouri State University, September, 1974.

safety and first aid; communicable and noncommunicable diseases; mental health and; sex and family life. The final 100 questions were originally selected from 850 questions administered to 12,000 individuals.

Yacenda[41] in 1974 reported on a study designed to determine venereal disease knowledge and attitudes as held by college students, via questionnaire. The results of the analysis of the data from 292 respondents indicated that: those individuals having had a venereal disease understood causes of venereal disease; and that infectiousness can last longer than the apparent symptoms. Females more than males were aware of existing effects of venereal disease upon pregnancy and birth, but the respondents generally did not comprehend the broad symptomatology of syphilis and gonorrhea.

In 1974, Yarber[42] reported on a study conducted to determine the knowledge and behavioral practices of college students in the prevention of venereal disease infections. The sample was limited to 225 female students attending a contraceptive clinic at a Student Health Center. Results of the analysis of the data indicated that approximately ninety percent of the sample population was actively participating in sexual intercourse at the time of the study, and desirable, as well as undesirable practices existed within the study population as indicated by many false misconceptions.

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[41]J. Yacenda, "Knowledge and Attitudes of College Students About Venereal Disease and Its Prevention," Public Health Reports, 89:170-176, March-April, 1974.

[42]W. Yarber, "College Women and Prevention of Venereal Disease," Journal of the American College Health Association, 22:412-418, June, 1974.

Brennan[43] in 1975 studied and developed a test instrument which could be used to measure objectively the knowledge of prospective health education teachers in the area of environmental health. Test items were developed to measure teachers' knowledge about the environmental health concepts found in the New York strands related to environmental health. Items were submitted to a jury of experts for validation and later the test was administered to 100 randomly selected students who were health majors within the City University of New York, in order to determine reliability.

Yarber and Williams[44] designed a study to determine knowledge, attitudes, and practices of undergraduate college students relative to individual venereal disease preventive measures in 1975. A sample of 373 students were utilized in order to provide baseline data for medical personnel and health educators in determining educational methodologies for the prevention of venereal disease. Findings of the study indicated the existence of desirable and undesirable degrees of venereal disease knowledge, attitudes, and practices among the students.

As reported in 1975, developed, administered and standardized was a personal health knowledge test for college students by Phillips.[45] Initially a 150 item test was constructed from ten different health content areas and validated by a committee of specialists. Later, two

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[43]A. Brennan, "Development of an Objective Knowledge Test Instrument in the Field of Environmental Health," unpublished Ph.D. dissertation, University of Wisconsin, 1975, 225pp.

[44]William L. Yarber and Carl E. Williams, "Venereal Disease Prevention and a Selected Group of College Students," Journal of the American Venereal Disease Association, 2:17-24, December, 1975.

[45]D. Phillips, "The Development and Standardization of a Personal Health Knowledge Test for College Students," unpublished Ph.D. dissertation, University of Oregon, 1975, 86pp.

matching preliminary test forms were developed and administered to 243 college students, in order to determine an item analysis mean of .326. The final test form was administered to 1,282 Oregon college students.

Under Pigg's[46] direction during 1975-1976, Form A of the FAST-TYSON HEALTH KNOWLEDGE TEST, a valid and reliable instrument with established norms, was administered to 4,387 college freshman students attending thirty institutions in Georgia. The primary purpose of the study was to evaluate the health knowledge of the freshmen to determine areas of strength and weakness in health knowledge for the purpose of improving the status of health instruction. The analysis of the data indicated that the students were most knowledgeable about the content areas of safety/first aid and consumer health, and possessed less knowledge about the content areas of personal health; exercise/relaxation/sleep; nutrition/diet; contemporary health problems; tobacco/alcohol/drugs; diseases; mental health and human sexuality.

Snegroff[47] in 1976 reported on the development of an abortion knowledge test. The final thirty questions were developed from concepts related to: abortion methods and procedures; legality of abortion; abortion statistics; birth control/general and abortion as birth control, prenatal development; female reproductive system; psychological effects and; physical effects. A jury of experts validated the questions and reliability was found to be .79.

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[46] R. Morgan Pigg, The Georgia Health Education Study, The University of Georgia, 1976.

[47] S. Snegroff, "The Development of Instruments to Measure Attitudes Toward Abortion and Knowledge of Abortion," Journal of School Health, 46:273-277, May, 1976.

In 1978 Nazaretian[48] completed a study designed to assess and compare the present health knowledge of college freshmen enrolled in selected institutions of higher education in thirteen Southern States. The valid and reliable GUNTER HEALTH EDUCATION KNOWLEDGE TEST of 100 items was given to 3,847 students attending fifty-four institutions. The results of the analysis of the data suggested that the students were not adequately informed about their health, as indicated by mean scores of 35 and 33.

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[48] A. Nazaretian, "An Assessment of the Health Knowledge of College Freshmen in Selected Institutions of Higher Education in Thirteen Southern States," unpublished Ed.D. dissertation, University of Alabama, 1978, 104pp.

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